General Topics

* Public comment period
* IARC
* ATSDR
* PMRA PRVD
* Study request
* Human milk/urine data
* Weed Resistance Management
* Monarchs
* Endangered species

Paired Human Milk and Urine Samples Analyzed for an Academic Collaborator

41 Human milk samples

- **No detection** of glyphosate or AMPA
- All <LOQ (10 ppb)
- All <LOD (2 ppb)

40 Paired Urine samples

- Glyphosate and AMPA each detected in **93-95%** of samples

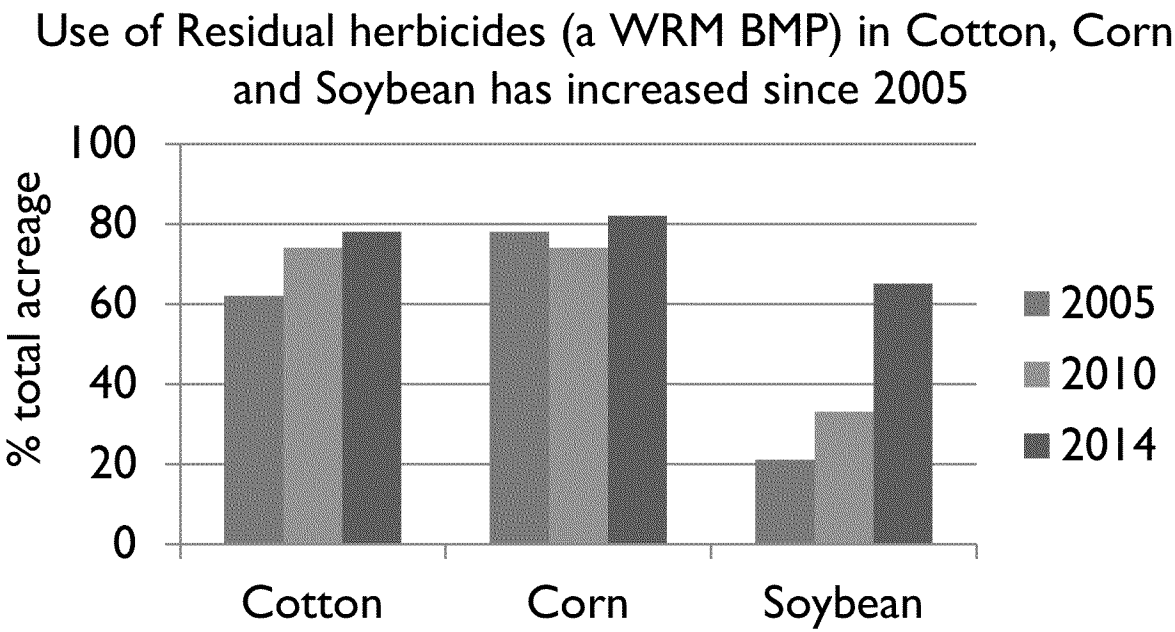
Glyphosate	AMPA
29 of 40 >LOQ (0.1 -2 ppb)	29 of 40 >LOQ (0.1 -1.3 ppb)
8 of 40 >LOD and <LOQ (0.02 - 0.1 ppb)	9 of 40 >LOD and <LOQ (0.03 - 0.1 ppb)
3 of 40 <LOD (0.02 ppb)	2 of 40 <LOD (0.03 ppb)

- This demonstrates that exposure to glyphosate occurred

Findings will be presented at July 19-24 FASEB Scientific Research Conference

WRM activities illustrate that grower behavior is changing

* Roundup Ready PLUS® Crop Management Solutions introduced in 2007 consisting of recommendations, education & training, and incentives
* Growers understand the economic benefits of including a residual in their weed program
* No new glyphosate resistant weeds in row crops since 2007 likely due in part to awareness of WRM, education activities, adoption of Best Management Practices (BMPs) including the use of multiple mechanisms of action



Brookes, ICABR 2015

WRM Plan Proposal for Glyphosate

* The proposed glyphosate WRM plan will primarily follow the approach of the WRM plans for Enlist Duo and Dicamba (proposed). The components include:
  - Appropriate field detection and remediation
  - Educational and informational
  - Evaluation
  - Reporting
  - BMP's (best management practices)
* Plan considerations:
  - There are many uses of glyphosate including: row crops, orchard and vineyard, industrial roadside, home and garden.
  - Focus of the proposed WRM plan is on glyphosate uses (e.g. burndown, OTT) in the 100+million acres in corn, soybean, cotton and canola production.
  - "Grandfather" current glyphosate resistant weeds
* EPA considerations:
  - How will EPA be equitable across all glyphosate manufacturers / providers / registrants?

Consequences of General Restrictions on Glyphosate Product Use in Agricultural Systems

General restrictions could minimize economic & environmental gains

IMPROVED PRODUCTIVITY & INCOME

Farm income gains from GT technology of $24.9 billion (1996-2013)

Productivity gain for GT soybean of 5.32 million tons (2013)

PROTECTS BIODIVERSITY

Replacing 5.32 million tons of soybean would require additional crop land

Protects 4.73 million acres of pollinator habitat, pastures, and other habitat

POSITIVE ENVIRONMENTAL IMPACTS

Saved 525 million lbs pesticides 1996-2013

Reduced EIQ in GT corn (14.5%) and GT soybean (24.9%)

Conservation of SOIL and WATER, reduced CO_2 with minimum tillage

*** Increasing farmland productivity will be a catalyst for driving conservation efforts ***

Label changes will address designated pollinator habitat sites

- Protects sensitive vegetation used by pollinators and monarchs
- Ensures protection of designated pollinator habitat sites known to producers
- Includes BMPs for management of weeds on cropland and other non-crop sites to protect habitat sites, including field borders, fence rows, ditches, roadsides, etc.
- Designated pollinator habitat sites will be implemented on public and private lands, including roadsides, utility rights-of-way, government-owned land, Crop Reserve Program land, on-farm conservation strips, and other sites adjacent to agricultural production

Potential Label Amendments

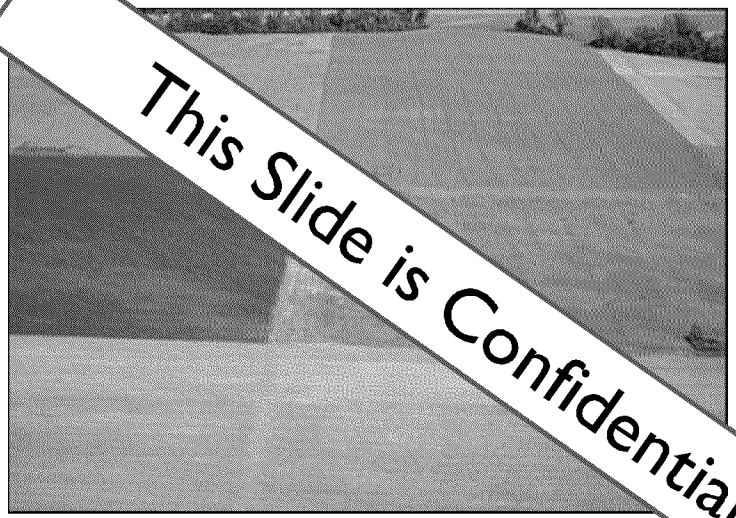
* **POLLINATOR AND MONARCH BUTTERFLY PROTECTION**

Glyphosate, the active ingredient in this product, has been found to be practically nontoxic to the honey bee in standardized testing protocols. However, this herbicidal product, and some of the modern environmentally friendly agricultural practices it helps promote, can affect the habitat that pollinators, such as honey bees and monarch butterflies, need to survive. *The U.S. Pollinator Health Task Force has targeted the restoration and enhancement of publicly and privately owned pollinator-friendly habitat to provide new and diverse nectar and pollen resources for honey bees and other pollinators. This habitat could, for example, be part of a roadside or utility right-of-way, along fencerows, riparian areas, vegetative filter strips, and other non-cultivated areas. When applying this product around such habitat, maintain a buffer of adequate size to ensure that the use will not affect the sensitive vegetation in this habitat.* For more information on the use of this product around sensitive habitat, see the APPLICATION EQUIPMENT AND TECHNIQUES section of this label. For more information on establishing pollinator-friendly habitat, contact ….

* **Include similar language in support of BMPs in other sections of the label – Spray Drift Management, Farmstead Uses, Perennial Weeds Rate Table, etc.**

***NOTE**: Milkweed plants are vital breeding habitat for monarch butterflies. The U.S. Pollinator Health Task Force has targeted the restoration and enhancement of publicly and privately owned pollinator-friendly habitat to provide new and diverse nectar and pollen resources for honey bees and other pollinators, including the monarch butterfly. Please consider this before targeting milkweeds with this product. For more information on protecting pollinator habitat, contact ….*

Potential Impacts of Restrictions on Glyphosate Use within In-Field Buffer



http://extension.missouri.edu/p/g9421

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Many farms have eliminated field borders and fence rows to increase production and economic return.

on of non-targeted in-field Buffer area increases as the s ds decreases.

Non-targeted 25 Ft Field Buffer (3.75%)	Imp
Reduced Farm Income (corn and soybean)	$136.8 M
Lower Production of US soybean	7.43 M bushels
Environmental Impact of Reversion to Tillage	168 M Kg CO_2 released

Graham Brookes PG Economics, Inc. 2015